



PrepLab36

**ACT Answer Guide
Form 1267C**

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English Test

1. Answer: B. *Additional Comma Uses and Misuses*

The original text is incorrect because it includes a comma in a place used to separate articles in a list. Lists must be comprised of 2 or more articles. For example, were it “a snake curving, winding, and bending,” it would be necessary. **D** similarly baits this mistake, however “snake” is not an article in a list. Imagine a narrator reading this dramatically. Where would he pause?

2. Answer: J. *Joining and Separating Sentences: Comma + FANBOYS*

Note the “NOT” in this question. **J** is the only option which does not offer any form of conjunction for the double predicate in this sentence. “Cleared this path,” and “Paved it with packed gravel,” are both predicates, independent of one another, which share a subject. In order to compound them, they must be separated with a comma, conjunction, or similar, as provided in options **F-H**.

3. Answer: D. *Pronouns: Agreement and Case*

The most tempting answer here is **C**, however it is incorrect because adding a “that” does not actually fix the problem with the word “they” in this sentence. In this context, the antecedent to the pronoun “they” would be “the county,” which would mean the governing body itself was peacefully hiking and biking. **J** offers a more general answer, however generality trumps specificity when the specifics are wrong.

4. Answer: F. *Dashes*

Em dashes are tricky, but don’t be intimidated. If you aren’t sure whether it’s being used correctly, instead look at the options and see which you know are wrong. **G** can be ruled out because a semicolon can only lead into an independent clause, however here we have a fragment. **H** should be a fairly clear run-on sentence with no punctuation whatsoever. **J** is wrong for the same reason as **G** yet with a superfluous comma thrown in. Even if you don’t quite understand the em dash, if you understand semicolons you can solve this question.

5. Answer: B. *Is it Relevant: Deleting*

It may be a good idea to read ahead a little bit here; it’s hard to say what the essay could lose if you don’t know what it has to begin with. Then consider the sentence in question. It doesn’t provide a reason for the narrator being in the forest, so **A** is out. It certainly doesn’t contrast the lightheartedness; in fact it reinforces it. **D** is one that can’t be ruled out because it doesn’t make a direct claim, however when compared to **B** it’s fairly clear which makes sense—otherwise he may as well be riding a green plumber.

6. Answer: J. *Joining and Separating Sentences: Comma + FANBOYS*

Here it is important to include a conjunction for the compound sentence. Options **G** and **H** both have a transition; however, they would only be correct at the start of a new sentence. If there was a period in the place of the comma they may be feasible, however only **J** (which does not refer to the previous sentence by means of a pronoun) is concise and without redundancy.

7. Answer: D. *Word Pairs and Comparisons*

This question can be frustrating because it's not an objective one, but rather depends on your ability to read the connotation of the words used. The text as written is entirely neutral in tone, so we can be sure it begs improvement. **B** and **C** are both somewhere on a scale from neutral to fond, however **D** matches the affectionate tone sought in the question.

8. Answer: F. *Pronouns: Agreement and Case*

G and **H** are grammatically correct options, however in the context of the passage they do not make sense. "You" and "one" do not match the first-person narration, so can be eliminated. Unlike the former two, **J** is not grammatically correct because the addition of "while" would suggest a new independent clause to be added at the end.

9. Answer: A. *Joining and Separating Sentences: Comma + FANBOYS*

This is a compound sentence, with two independent clauses joined by a comma and the conjunction "and." **B** and **D** both cause the first clause to become dependent, thus breaking the sentence. While **C** is grammatically correct, in the context of the sentence it is far less reasonable than the original text.

10. Answer: H. *Joining and Separating Sentences: Comma + FANBOYS & 10, Adjectives and Adverbs*

"I bounce gently along in my padded chair" is an independent clause, a complete thought, so it needs no comma whatsoever. If you read the sentence to yourself, you will likely notice that there's no natural pause in the underlined portion. If the commas confuse you, you can still note that only options **H** and **F** correctly use an adverb instead of an adjective.

11. Answer: A. *Is it Relevant: Replacing*

In order to answer this question, you have to first find the subject of the next paragraph. Noting the emphasis on the narrator's leisurely pace, it makes sense to begin with a reference to speed. The word "their" a bit further on also provides a hint in that it is a plural pronoun; "Nature" and "The sun" are singular, so they cannot be correct answers. Given the choice between cyclists and days, it makes far more contextual sense to pick the former.

12. Answer: H. *Joining and Separating Sentences: Period*

Here we must determine whether the portion after the underline is an independent clause or a dependent clause. To do this, all you need do is read it on its own. "I don't understand their hurry." is a complete sentence, so it is an independent clause. As such, the answer is to make it a new sentence. If there were an option for a semicolon that could also be correct, however the other options are not.

13. Answer: D. *Parallel Structure: Lists & 5, Additional Comma Uses and Misuses*

Here, again, we must find the potential clauses. While "I spend an hour," is an independent clause, "looking and listening and learning," is not. It cannot come after a semicolon, then, so we know right away there must be a change. **C** is no better, so we must look to **B** and **D**. The commas in option **B** are superfluous and incorrect, so foregoing punctuation to create one long clause is the answer.

14. Answer: G. Apostrophes: Possessive vs Plural

Singular possessive. There is one trail which has one end. As written it is a plural without possession, **H** is a plural possessive, and **J** isn't even a thing. **G** is the correct singular possessive.

15. Answer: B. Suppose the Writer's Goal

The trick with this question is that the goal described in the question is not actually a great fit for the essay. However, when we look at the "No" options it's clear that neither is appropriate. **C** wrongly asserts a focus on the city, which is blatantly irrelevant, while **D** suggests a technical focus on the wheelchair, Luigi. Both of these are flawed reasoning, so we must discern which "Yes" is more appropriate. **A** also offers an invalid explanation, while **B** gives a general yet correct evidence. If you read the passage, it should be easy to determine which answers are not relevant to the text.

16. Answer: G. Non-Essential Transitions, Words, and Clauses

If we recognize the portion of the sentence leading up to the semicolon is not an independent clause, we can rule out both answers **F** and **H**. The difference between **G** and **J** is a subtle one, given the heavily-punctuated sentence: the final comma. It does not make sense to have a comma after "thousands," as it is part of the subject "thousands of New York City residents," so it can be determined invalid. **G** is the remaining answer.

17. Answer: C. Colons

The colon is an interesting creature. It is used to present a list, example, or other subject. In this case, we are being introduced to "an incredible engineering feat." A semicolon is not correct because we do not have an independent clause, nor can we forego punctuation as in **D** because we are clearly not in the same idea. The preposition "over" in option **B** would give the sentence a new meaning, suggesting that the city was celebrating literally above the completed subway.

18. Answer: G. Is it Relevant: Deleting

This question relies on your comprehension skills. When we consider what explicitly can be determined from the phrase in question, only **G** is a reasonable answer. It could be argued that one might infer the other answers, however the test won't listen to your arguments: only one answer is definitely correct.

19. Answer: D. Shorter is Better: Redundancy and Wordiness

When deletion is an answer, always give it special attention; it is often correct. In this case it is, however we still must determine why. The beginning of the sentence already states that the route took 26 minutes, so adding that it was under a half an hour is redundant. The test *hates* redundancy, so you can be sure it is better off omitted.

20. Answer: F. Is it Relevant: Replacing

The answer here lies in the question. Which choice CLEARLY and EFFECTIVELY describes the solution? Options **G-J** are all extremely vague, and though not in breach of any grammar rules they are far from what the question sought.

21. Answer: B. Pronouns: Agreement and Case

In order to determine the correct pronoun, we must consider the antecedent (the implied noun to which the pronoun refers). The word “that,” as used in the text, can only be referring to “proposals.” This does not make sense in the context of the sentence. “Those” as in **C** has the same problem. We cannot delete as in **D**, because then “took” would have no subject. “It,” though vague and with no clear implied antecedent, is correct because it refers to the process of resolution mentioned later in the sentence. This is a difficult question from a technical standpoint, but if you read aloud to yourself you will likely be able to determine which just sounds right!

22. Answer: J. Non-Essential and Essential Clauses

This sentence has a fairly simple subject and predicate. “The engineer William Barclay Parsons,” is the subject, and “accepted responsibility for overseeing this project,” is the predicate. There is one other way to punctuate this sentence, but it is not one of the options. If the em dash in **G** enclosed BOTH sides of the name, it would be a correct notation for a descriptive aside. Similarly, commas could be used on either side. HOWEVER as we have no option for this, we know to keep the subject as a whole, and the simple sentence is in no need of punctuation.

23. Answer: C. Adjectives and Adverbs

This question tests your understanding of parts of speech. What we need here is an adjective and a noun. This would fit the preceding sentence most simply. “Innovation,” is a noun, however, so as is we have noun-noun. **B** offers verb-noun. **D** is verb-noun. Only **C** has an adjective describing a noun for a correct companion to the verb “using.”

24. Answer: F. Shorter is Better: Redundancy and Wordiness

More complicated does not mean more correct! Options **G** and **H** are simply messes of words put there only to be confusing and make you doubt the correct, simple answer. Note that in **J** omission is not correct, because in this case we lose an important detail. While the sentence *could* end here, it is not the same as specifying what they were digging.

25. Answer: C. Colons

While the start of this sentence (up to “created”) is an independent clause, the fact that we must include the word “with” in all answers does rule out many options. The text as is incorrectly uses a colon without introducing a subject, while **D** tempts one with an appearance of beginning a list. In reality, however, the list does not begin with the word “layers.” As it is describing all of the materials as being layers, a colon could only be used after the word “of.” **B** incorrectly places a comma between “created” and “with,” which are more-or-less conjoined at the hip. No punctuation is needed here to complete the sentence.

26. Answer: G. Relative Pronouns: Who(se), Whom, Which, Where, and That

Many do not understand the correct use of the word “whom.” As a general rule of thumb, it will almost always follow the word “of.” You will never see “of who,” except in very specific corner cases. “Them” is incorrect because the antecedent would be the subject of the sentence, “stations.” **J** may be tempting because of the potential of “many” to be a noun meaning “many people,” however a comma would not be correct if we sought to use it as such. Beginning a new independent clause is possible, but not an available answer.

27. Answer: A. Non-Essential Transitions, Words, and Phrases

“Therefore” means “because of what was just said.” “For instance” is specifying something as an example. “That is” is a clarification. “However,” however, is adding that something is contrary to what was just presented. Here we are told that it many were skeptical, but then, contrary to this statement, we are told they adapted quickly. “However” is the best, most logical answer.

28. Answer: G. Is it Relevant: Inserting

Which answer clearly and effectively portrays the scale in the present day? **F** offers no reference to scale though it does refer; to the quote **H** refers more to a feat of management than of magnitude, but is a closer option than the others; it does not, however, flow from the paragraph. **J** has a similar problem in that, while directly about size, it has nothing to do with the newspaper quote. Only **G** successfully integrates the quote to modern statistics to support the paragraph.

29. Answer: C. Paragraph Order, Pronouns: Agreement and Case

The clue here should be the pronoun “this.” Where is there a logical antecedent just before that this could follow? Only **C** describes a technique, so it must logically go there.

30. Answer: J. Word Pairs and Comparisons

This vocab question directly asks for you to interpret the connotation of the words provided. The existing word and option **G** are both very neutral, and in no way suggest the previous decline. While “influenced” is a more vivid word, it also does not reference the decline addressed in the question. “Revived,” however, implies it had been dying (thus, in need of revival).

31. Answer: B. Verbs: Agreement

We can infer that the “elite galleries” and the “upper class” are the same or similar group of people, so some answers do not make sense. **A**, **C**, and **D** all suggest he brought his art out of the upper class by or while catering to it, which hardly makes sense. Instead, the pronoun in **B** changes the verb “cater” to be done by the galleries instead of Rivera, making a logical sentence.

32. Answer: J. Sentence Order

This is a complicated question and is very intimidating at first glance. However, if you read each answer all the way through you will find it’s much easier than it looks. **G** is immediately eliminated because it is in the present tense with the active verb being “should.” Now that we have confirmed the root “Rivera attracted,” we can ask: what did he attract? Controversy, of course. And why? For his belief. To expand, his belief that the working class should wield more political power. This all fits together in answer **H**.

33. Answer: D. Shorter is Better: Redundancy and Wordiness

As always, when deletion is an option make sure you consider it strongly. Here it is correct, because it is already specified to be his “artistic subject,” so adding that it is in his art is redundant. Always cut redundancy when you can!

34. Answer: H. Parallel Structure: Prepositions

“As” is a comparative word which implies equality. It’s use before the word “expansive” means we are about to be told something equally expansive. Because two equal things cannot be more or less equal than the other, “than,” which implies this inequality, is not correct. “If” mandates a condition,

and there is no condition in this comparison. “Then” denotes time or sequence, which is also irrelevant. Another “as” properly notes the equality of the comparison.

35. Answer: B. Verbs: Agreement

The action verb “depict” here is our clue. “Depict” must have a plural subject, while “depicts” would be the singular form. This also rules out option **D**. Though harder to tell at first look, **C** is also singular. “Each of his frescoes” would mean any one specific fresco out of a large grouping. “Many” is the only plural option, and thus the only one which accurately pairs with the verb in the sentence.

36. Answer: H. Non-Essential Clause, “,...,”

The core subject and predicate here are respectively “The same workers” and “stand tall.” The rest is descriptive, and in order to determine how they fit together in the given order we have to recognize which parts are and aren’t part of the subject. “On the right. . .through history” is a description of the workers. It is not an independent clause, and thus cannot retain the period nor use a semicolon. Em dashes also follow this rule. While it is clumsy and loaded with commas, using one to separate the description from the noun is correct here.

37. Answer: C. Verbs: Agreement and Tense

The plural “were” immediately rules out leaving the sentence unchanged. The addition of “if” in both **B** and **D** actually causes the predicate to become part of the subject by turning it into a descriptor, causing the sentence to become a fragment. The simple **C** is correct and concise.

38. Answer: F. Additional Comma Uses and Misuses

Because there are only two adjectives here, not the three required to make a list, there does not need to be any punctuation. If there was one more adjective it would be necessary to punctuate, but as is the sentence is correct.

39. Answer: C. Is it Relevant: Deletion

What detail is provided in the underlined portion? Is it elsewhere in the sentence? These are the two questions to consider when given an omission question. Because it is not elsewhere, we immediately know **A** to be untrue. **B** is not true because the sentence is still complete without the knowledge of what is being painted. **D** is incorrect because, while one could argue it is unnecessary, it is in no way ambiguous. **C** correctly points out that the detail is new and relevant.

40. Answer: J. Joining and Separating Sentences: Comma + FANBOYS

Choosing the correct conjunction is entirely dependent on context. “When” is not correct because there is never a time when the South central panel shows something different. “Since” is also incorrect because the South central panel did not cause the North to show what it does. “Thus” also incorrectly implies causation. “And” correctly joins the two ideas without implying one’s influencing the other.

41. Answer: B. Verbs: Agreement

We must have a predicate for this sentence to be complete. Here, “depicting” serves not as an action verb but simply part of a description. **C** and **D** similarly fail to create action. Only **B** creates a predicate, and thus a complete, independent clause.

42. Answer: F. Is it Relevant: Inserting

What matters here is not whether it should or should not be added, but rather the reason provided. Even if you think it should not, **H** and **J** are not sufficient reasons. **J** is close, however the examples are not a true digression. **G** similarly offers incorrect evidence.

43. Answer: B. Non-Essential Clause, “...,”

The portion between the underline and “celebrates” is a distractor. The description offered cannot be changed, and needn’t impact your answer. Instead imagine the sentence moving directly from “because” into “celebrates.” The only answer that makes sense is “The fresco is a dynamic work that celebrates all working men and women.”

44. Answer: J. Non-Essential Transitions, Words, and Phrases

As is often the case, the deletion is correct here. One hint to this aside from the fact that none of the other answers make much sense in underline is that they all mean more or less the same thing; they all lead into an exception or something contrary to what was just said. This doesn’t fit here, and even if it did they couldn’t all be correct. Thus, delete.

45. Answer: A. Sentences and Fragments

You hopefully notice when first reading the sentence that there are no glaring errors; that is, it sounds correct. Often this gut feeling is right. Note that “even though we attended different high schools and colleges” is not an independent clause. It can’t be separated by a period or semicolon as in **C** and **D**. The addition of “yet” can be deemed unnecessary because “even though” already serves the purpose of connecting these ideas. “Even though” could be replaced with “yet,” however having both is not correct.

46. Answer: J. Joining and Separating Sentences

Be careful! This is a “NOT” question. If you don’t read carefully you may see that **F** is grammatically correct and immediately fill it in. Hopefully you would read the other answers and notice that all except **J** are, because **J** is the only one which does not in any way join the compound sentence.

47. Answer: C. Additional Comma Uses and Misuses

This can be a difficult comma question. When stuck on comma questions, reading aloud with long pauses for commas helps to determine what is correct. We can rule out **B** and **D** fairly quickly because they do not offer adverbs, and “enjoyed” is already the active verb. Between **B** and **A**, you can hopefully tell that two commas sound better than none. Grammatically, there does not need to be a “though,” in this sentence at all: that’s how you can tell it should be separated with nested commas.

48. Answer: F. Word Pairs and Comparisons

We need a phrase here that expresses “fondness” and shows a “positive reaction.” **G** and **H** are very neutral, with almost no expression. **J** expresses surprise, which though not exclusive to fondness is nowhere near as direct as the written sentence.

49. Answer: B. Pronouns: Agreement and Case

“Whom” is used with prepositions. Here we do not have one, so “who” is appropriate. “Whose” is possessive, which clearly is not right. “Which” does not refer to people, even, so a simple “Who” is the correct answer.

50. Answer: F. Pronouns: Agreement and Case

Here we have to determine which pronoun implies the most appropriate antecedent. “We,” would mean who, the speaker and his parents? That doesn’t make sense, seeing as they told him about her. “They” would imply his parents learned through themselves. “He” makes less sense yet, as there’s no singular male referred to here. “I,” we can assume, is correct, and is similarly consistent with the first person narrative.

51. Answer: B. Sentence Order

The biggest hint here should be in sentence 2, where the reference to Joan is unprompted. It would make more sense following sentence 3 explaining how he found her, which itself makes more sense once Fairbanks is introduced in sentence 1. These questions can be tricky little puzzles, but if you look out for signal words they become much simpler.

52. Answer: J. Shorter is Better: Redundancy and Wordiness

In this question, deletion is again correct. The most common reason for deletion is redundancy, and this sentence has it. “To keep the battery from freezing” already implies “so the battery would stay warm.”

53. Answer: D. Word Pairs and Comparisons

All of these are viable past-tense notations for “shine” except “shoned,” which is not a word. The hybrid of “Shined” and “Shone” is meant to seem like another possibility.

54. Answer: H. Is it Relevant: Deleting

The detail in question, we can see, is a descriptive one which offers a setting and some simple imagery. It does not include a response to the weather, nor does it analyze the plugging. While you may find the detail unnecessary, it does not repeat anything, and you can’t choose half of an answer. Thus, **H** is the most correct option.

55. Answer: A. Word Pairs and Comparisons

All answers here are grammatically correct, so you must determine which makes the most sense and conveys the author’s thoughts most accurately. **B** implies they found the habits by chance, **C** that they paid the habits a visit, and **D** that they left without the habits and came back with them. “Slipped into,” correctly suggests they unknowingly recommenced their old habits.

56. Answer: H. Sentence Order

As is, the sentence states Joan’s house was on top of the rabbit hutch. **G** says the field is on the hutch. **J** also places the field atop the hutch. Only **H** accurately places Joan and the narrator on the hutch.

57. Answer: B. Word Pairs and Comparisons

All of the options except **B** show Joan’s being extremely occupied by her work. **B** seems to say her work gained possession of her.

58. Answer: H. Parallel Structure: Prepositions

“Along” suggests positioning, which is not applicable here. The other words all show that her decisions were the subject of her firmness, which “Along” merely places her firmness somewhere therein.

59. Answer: A. *Is it Relevant: Replacing*

While the changes listed are correct sentences, they do not aptly sum up the passage. If you read, you’ll know there was no hint of the “sadly” in **B**, nor a focus on a mutual devotion to work, nor indeed any real explanation of the time spent together when they were young.

60. Answer: G. *Paragraph Order & 18.1, Is it Relevant: Inserting*

The best answer is **G** because the suggested sentence is a transition from the description of their bond to their eventual reunion. Words like “yet” and “such” are excellent indicators of where to place sentences in these questions.

61. Answer: A. *Shorter is Better: Redundancy and Wordiness*

The word “attaching” needs two nouns; one to be attached, and one to which to attach. Because we already have “began attaching,” we do not need the additional actions of “which they connected” and “which they related” as offered in the answers. Answer **D** does not offer the second noun to which to attach the stories. Thus, only **A** is a valid answer.

62. Answer: H. *Joining and Separating Sentences: Comma + FANBOYS*

This is actually two independent clauses, best written as a compound sentence. “The sun sets,” is an entire idea, and “The images of . . . appear in lights overhead,” is similarly so. They can be connected with a simple comma and conjunction. **J** could be a grammatically correct sentence, however it would mean the sun was setting the images; the sun, not holding them up, could hardly set them.

63. Answer: A. *Non-Essential Clause, “. . . ,”*

In this case, “or constellation” is offering an alternate wording. As it is not a functional part of the subject-predicate relationship, it is best nested between two commas. If you are unsure when a phrase is one such extra detail, see if the sentence makes sense without it. If it does, you are likely safe to put it in some commas (or em dashes, if they’re an option).

64. Answer: H. *Is it Relevant: Replacing*

Read ahead! It’s okay to skip a question like this and come back to it when you have the context. Near the end, a whole paragraph is devoted to the myth and constellation of Orion, so this question becomes simple if you have a little patience.

65. Answer: D. *Word Pairs and Comparisons & Is it Relevant: Replacing*

Don’t be fooled by the specification “in modern times!” The question is looking for visual information, which is only provided in option **D**. While not explicitly referencing time periods, it is still the correct answer to the question.

66. Answer: G. *Word Pairs and Comparisons*

This is a question of vocab. “Overseers” are people in a managerial position who monitor the actions of others. Each other option here describes someone who looks at the sky.

67. Answer: A. Word Pairs and Comparisons

The significance comes from the detail of the Karasuki representing a plow. Plows being a traditional agricultural tool, it's relevant that the Japanese communities mentioned are agricultural ones. Their distance, population, and historical-ness have no pertinence to the plow imagery.

68. Answer: J. Diction and Register

For a formal, informative essay, it's not appropriate to use such casual phrases as in **F** and **G. H**, while not such a breach of etiquette, is wholly unnecessary, and it is a faux-pas to use second-person pronouns in an informative essay.

69. Answer: A. Non-Essential Transitions, Words, and Phrases

B is simply false, while **C** and **D** both leave out important details. It is significant that this interpretation is local to other parts of Japan, and not those already mentioned.

70. Answer: G. Verbs: Agreement

"Stars" is the root of the subject here, and is plural. "Has" is singular; "could of" is wrong not only because it doesn't fit, but also because it would be "could have" if it was even apt; "has been" is just as singular as **F**. Only **G** has a plural verb and actually makes sense.

71. Answer: D. Non-Essential Transitions, Words, and Phrases

This one sounds really weird, and you may be tempted to throw commas in there just because it seems like a run-on. But don't let your ears fool you; there is no need for a comma until the end. "The mythology of the Tswana people of South Africa" is one long subject, and "In" is necessary for the word "represent" later in the sentence. Imagine it flipped this way: "These same stars represent three pigs in the mythology of the Tswana people of South Africa." The only comma we need is to show where we flipped.

72. Answer: J. Relative Pronouns: Who(se), Whom, Which, Where, and That

G and **H** are not grammatically correct, however **J** and **F** are. To determine which is correct, we have to use logic to analyze what each is saying. **F** seems to say that the scorpion's inability to sting is the *cause* of the distance, while **J** says the distance prevents the stinging. **J** makes more sense in this context.

73. Answer: C. Apostrophes: They're, Their, There

Their, there, they're: the banes of English-speakers.

Their=Belonging to them.

They're=They are.

There=That place.

74. Answer: G. Joining and Separating Sentences: Comma + FANBOYS

This is a compound sentence! As with all the others in this test, it can be joined with simply a comma and an "and." Note that "span" is not "spanning," which would validate other options.

75. Answer: D. Paragraph Order

The important part here is "free of direct references to a specific culture's view of the three stars." Dividing anywhere earlier than sentence 7 would leave some references in the conclusion, and thus be incorrect.

Mathematics Test

1. Answer: A. Linear Function: Rate

\$20 per v , vehicles; \$10 per p , persons

A. $20v + 10p$

2. Answer: F. Solving Equations

$$(9 + 5 - (-6))(5 + (-6))$$

$$(9 + 11)(-1)$$

$$(20)(-1)$$

F. -20

Tip: Pay attention to *NEGATIVE* signs. When substituting and distributing negative numbers *ALWAYS* use parentheses.

3. Answer: E. Rate & Proportion

1st: 60 per min. \rightarrow 80min = 480

2nd: 80 per min. \rightarrow 60 min = 480

Total = $480 + 480 = 960$

E. 960

4. Answer: J. Mean, Average

You know how to do an average. When asked to keep the average the same, the next value added must simply be equal to the average!

$$\frac{(210+225+254+231+280)}{5} = 240$$

J. 240

5. Answer: C. Rate & Proportion

The ACT loves to ask about hourly wages (pay *per* hour). Here she makes \$7.50 per hour for 40 hours.

$$\$7.50 \times 40 = \$300$$

And 1.5 times for more than 40 hours.

$$\$7.50 \times 1.5 \times 2 = \$22.50$$

$$\$300 + \$22.50 = \$322.50$$

C. \$322.50

6. Answer: K. Word Problems: Translation & Vocabulary

“A number squared” is x^2

“is 39 more” is “= 39 +”

“product of 10 and x ” is $10x$

K. $x^2 = 39 + 10x$

7. Answer: E. Solving Equations

$$9(x - 9) = -11$$

$$9x - 81 = -11$$

$$9x = 70$$

$$x = \frac{70}{9}$$

E: $\frac{70}{9}$

8. Answer: H. Rate & Proportion

Given: \$4.00 is discount price. Spent \$60

$60/4 = 15$ tickets purchased

Discount is \$37.50 less

$$\frac{(\$37.50 + \$60.00)}{15} = \$6.50$$

H. \$6.50

Trap: F is only the discount per ticket.

9. Answer: A. Factoring & FOIL

FOIL! (only if you have to)

A. $9x^2 - 16y^4$

Tip: The ACT loves the Difference of the Squares. A skilled test-taker should be able to recognize these backwards and forwards. Memorize these formulas.

- $(a - b)(a + b) = a^2 - b^2$
- $(a + b)^2 = a^2 + 2ab + b^2$
- $(a - b)^2 = a^2 - 2ab + b^2$

10. Answer: J. Quadrilaterals

Area. $l \times w = 32$

Perimeter $2l + 2w = 24$

Algebra solution

Solve for w , by substitution.

$$2l + 2w = 24$$

$$\quad \quad \quad -2w \quad -2w$$

$$2l = 24 - 2w$$

$$\div 2 \quad \quad \div 2$$

$$l = 12 - w$$

Substitute $12 - w$ for l in $l * w = 32$

$$(12 - w) * w = 32$$

$$12w - w^2 = 32$$

$$-32 \quad \quad -32$$

$$w^2 - 12w - 32 = 0$$

Factor:

$$(w - 8)(w - 4) = 0$$

$$w = 4 \text{ or } 8$$

J.4

That's a heck of a lot of algebra. Guess and check is better. Because the area and the perimeter are integers, then the length and the width both have to be integers, since:

Integer x Integer = Integer

Integer + Integer = Integer

So what are the factors of 32?

8 x 4 & 16 x 2.

Guess and check.

Trap: *K: 8, don't make the mistake of putting the longer side.*

11. Answer: D. Triangles

The SUM of the angles is 47° , then the other is simply $180^\circ - 47^\circ = 133^\circ$

D. 133°

Trap: *B. The measure of A and B added is 47, if you make each one 47, then their sum is 94, making C 86.*

12. Answer: K. Counting, Permutations, & Combinations

This is straight up counting. To make a lunch you need one of each, so just multiply the number of options together.

$$3 \times 3 \times 4 \times 2 = 72$$

K. 72

Traps: *F: 2 is the average of the numbers and H: 12 is the sum. Don't make these mistakes.*

13. Answer: B. Properties of Integers

Consecutive integers can be represented as

$$(n, n + 1)$$

$$n + 3(n + 1) = 79; \text{ solve for } n.$$

$$n + 3n + 3 = 79$$

$$4n + 3 = 79$$

$$4n = 76$$

$$n = 19$$

B. 19, 20

Trap: *Who says the ACT is not tricky? E is a trap of two consecutive numbers whose sum is 79.*

14. Answer: F. Functions $f(x)$

This is a very basic question that is on every test: evaluate a function for a given value of x .

$$f(-3) = -8(-3)^2$$

$$f(-3) = -8(9)$$

$$f(-3) = -72$$

F: -72

Tip: WATCH OUT FOR NEGATIVE SIGNS!

Tip: On *every* ACT, there are simple substitutions and evaluations that include operations with negative numbers. They love subtracting and distributing negative numbers, because you do not.

15. Answer: C. Exponents & Roots

$$3^x = 54$$

Look at the answers MUST be true.

You have memorized the powers of 3 (because I told you to).

$$3^2 = 9; \quad 3^3 = 27; \quad 3^4 = 81$$

Since 54 is between 27 and 81, x MUST be a number between 3 and 4.

C. $3 < x < 4$

Trap: E. A number between 3 and 4 is also less than 5. But a number less than 5, such as 1 or 2 does not HAVE to be between 3 and 4, so while E. COULD be true, it isn't always.

16. Answer: J. Numbers: LCM Least Common Multiple

That's right class, you are now back in fourth grade being tested on multiples. I like to break these numbers into factors:

$$70 = 7 \times 10$$

$$60 = 6 \times 10$$

$$50 = 5 \times 10$$

Our answer has to have common parts, we only need one 10, because each of them has a 10.

$$(7 \times 6 \times 5) \times 10 = 2100$$

J. 2100

17. Answer: B. Solids

Volume of a box is $l \times w \times h$

Given volume, and two dimensions, find the third.

$$81,000 = 45 \times 30 \times h$$

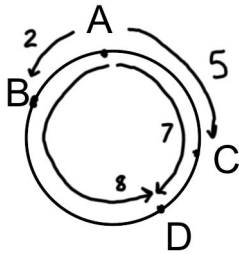
B. 60

18. Answer: J. Circles

DRAW! If you don't draw this one out, you are making a mistake.

Clockwise: move to the right

Counterclockwise: move to the left.



J. A, C, D, B

Tip: When you can draw something for a problem, DRAW! Physically moving your pencil uses a different part of your brain.

19. Answer: D. Exponents & Roots

Substitute $t = 5$ into $y = 16(2)^t$

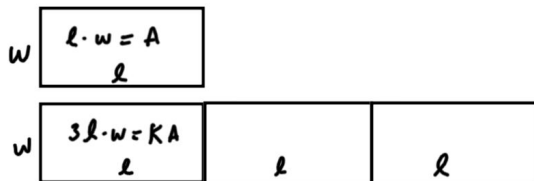
$$y = 16(2)^5 = 512$$

D. 512

Trick: Set up your equation and then take a peek at the answer choices. D is the only possible answer since NO power of 2 ends in ZERO! 16 is a power of two, therefore the answer MUST be a power of 2. You know that 512 is a power of 2. This could be a 10 second problem – you can solve it faster than most students can pick up and enter the equation in their calculator.

20. Answer: J. Quadrilaterals

DRAW!



Smaller Rectangle $l \times w = A$

Larger Rectangle: $3l \times w = kA$

$$k = 3$$

J. 3

21. Answer: E. Algebraic Operations

$(a + 2b + 3c) - (4a + 6b - 5c)$ Distribute the negative sign

$(a + 2b + 3c) - 4a - 6b + 5c$ CLT: Combine like terms

E. $-3a - 4b + 8c$

Tip: Be very careful distributing negative signs. This problem does not take long to do, so get it right by being mindful and executing.

22. Answer: G. Trigonometry

$\sin \theta = \frac{\text{Opp}}{\text{Hyp}}$

$\sin \theta = \frac{a}{c}$

G: $\frac{a}{c}$

Tip: The Trig on the ACT is usually this easy. Practice this problem and gain speed but do it with accuracy.

23. Answer: B. COUNTING, PERMUTATIONS, & COMBINATIONS



Label the five players A, B, C, D, E and put them in a circle.

1. A can only pass to C or D, pick C
2. C can only pass to E
3. E can only pass to B
4. B can only pass to D
5. D can only pass to A - and thus it takes five passes for the ball to get back to A.

B. 5^{th}

24. Answer: H. Linear Functions: $y=mx+b$

$y = 0.12x + 3000$ the slope is 0.12

add 0.1 to 0.12

H. 0.22

25. Answer: A. Exponents & Roots

$-8x^3(7x^6 - 3x^5)$ Distribute, be careful of the negative signs.

When multiplying variables with same base but different exponents, add them.

$$(-8x^3) \times (7x^6) + (-8x^3) \times (-3x^5)$$

Always use parentheses when manipulating terms in Algebraic expressions and equations.

Tip: Look at the answer choices. The answer must be two terms, first negative, second positive. That leaves only A and C. You can be down to 50/50 just by looking at the signs.

$$(-8 \times 7 \times x^{3+6}) + (-8 \times -3 \times x^{3+5})$$

A. $-56x^9 + 24x^8$

E is just wrong; it is for someone who clearly does not understand exponents.

26. Answer: G. ABS Absolute Value

This one you can type right into your calculator

$$\begin{aligned} & -3|-6+8| \\ & -3|2| \end{aligned}$$

G. -6

27. Answer: B. Triangles

Solve for \overline{BC} , a 3-4-5 right triangle. AEC is a similar triangle $\overline{AC} = \overline{BC} * 4$

so $\overline{AE} = \overline{BD} \times 4 = 3 \times 4 = 12$

B. 12

28. Answer: H. Functions $f(x)$

This is a linear function because it says "constant rate."

The easiest thing to do is substitute $t=0; y=14$ into each answer. Eliminate G, J, K

Then substitute $t = 1; y = 19$

$$F : (19) = (1) + 14 \text{ -wrong}$$

$$H : (19) = 5(1) + 14 \text{ - correct}$$

H. $y = 5t + 14$

29. Answer: E. Inequalities

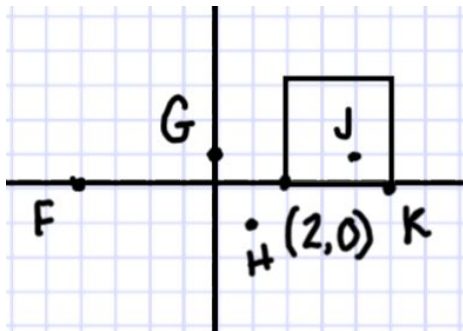
$$6x + 12 > 7x - 35 \quad * \text{ Simplify}$$

$$12 + 35 > 7x - 6x$$

$$47 > x$$

E. $x < 47$

30. Answer: K. Coordinate



Only K is 3 units away from (2, 0)

K. (5, 0)

31. Answer: F. Triangles

It does not get much easier than this:

$$A^2 + B^2 = C^2$$

$$y^2 = x^2 + 4^2$$

$$y = \sqrt{x^2 + 16}$$

E. $\sqrt{x^2 + 16}$

32. Answer: G. Probability

Change $\frac{12}{32}$ to $\frac{3}{5}$

Strategy 1: BACKSOLVE

Add answers to both the numerator and denominator and reduce.

The new fraction's denominator is 5, therefore the right combination MUST be a multiple of 5; ending in 5 or 10. J & K can be eliminated.

$$F: \frac{12+13}{32+13} = \frac{25}{45} = \frac{5}{9}$$

$$G: \frac{12+18}{32+18} = \frac{30}{50} = \frac{3}{5} \text{ correct!}$$

Strategy 2: Algebraic Solution

$$\frac{12+x}{32+x} = \frac{3}{5}$$

$$5(12+x) = 3(32+x)$$

$$60 + 5x = 96 + 3x$$

$$2x = 36$$

$$x = 18$$

G. 18

33. Answer: D. Coordinate Geometry & XY-Plane

$$4x - 2y = 8$$

The line is in standard form, to plot on xy -plane, just find the intercepts (zeros).

$$4(0) - 2y = 8$$

$$-2y = 8$$

$$\div -2 \quad \div -2$$

$$y = -4 \rightarrow (0, -4)$$

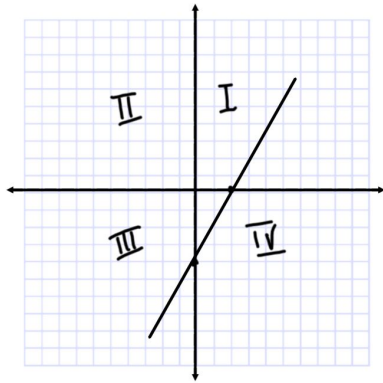
$$4x - 2(0) = 8$$

$$4x = 8$$

$$\div 4 \quad \div 4$$

$$x = 2 \rightarrow (2, 0)$$

Plot:



D. I, III, IV only

34. Answer: F. Linear Functions

Substitute and solve

$$y = -5x^2 + 9 \quad \text{Substitute } (1, 2a)$$

$$(2a) = -5(1)^2 + 9$$

$$2a = -5 + 9$$

$$2a = 4; a = 2$$

F. 2

35. Answer: D. Ratio

$$\frac{1}{2}(S) + \frac{1}{3}(S) + x(S) = S$$

$$\frac{1}{2} + \frac{1}{3} + x = 1$$

$$\frac{5}{6} + x = 1$$

$$x = \frac{1}{6}$$

Convert to ratio

$$\frac{1}{2} : \frac{1}{3} : \frac{1}{6} \text{ is equal to } 3 : 2 : 1$$

D. 3 : 2 : 1

36. Answer: F. Equation of Circle

The equation of a circle in the standard (x,y) plane is:

$$(x - h)^2 + (y - k)^2 = r^2$$

Where (h, k) is the center of the circle and r is the radius.

$$(x - 5)^2 + y^2 = 38$$

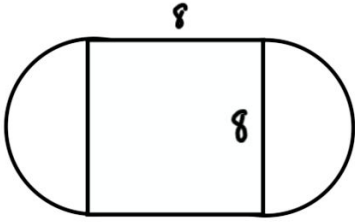
$$r^2 = 38; r = \sqrt{38}$$

$$a = 5, b = 0 \text{ center is } (5,0)$$

F. Radius = $\sqrt{38}$ Center = $(5, 0)$

Tip: Be careful of negative signs for the center of a circle. They move like functions; a negative sign $(x-5)$ moves the circle to the right.

37. Answer: B. *Multiple Figures*



You are asked for the *outside* perimeter of the figure.

2 semicircles make one circle, find circumference

$$C = \pi d; C = 8\pi$$

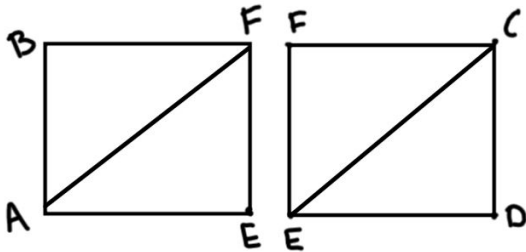
Add only two sides of the square, 16

B. $16 + 8\pi$

38. Answer: G. *Multiple Figures*

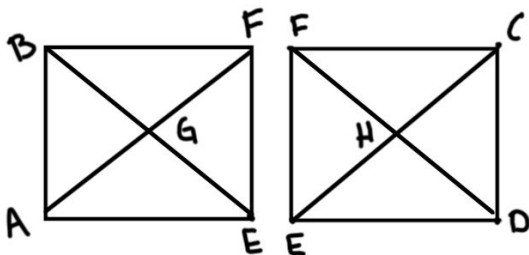
Two “Midpoints” cut a rectangle in half, forming two congruent smaller rectangles.

$$ABEF \cong EFCD$$

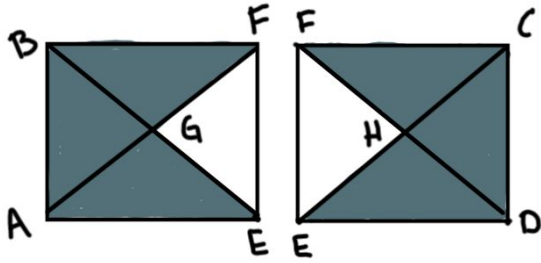


A diagonal of a rectangle cuts the rectangle into equal triangles.

$$\triangle ABF \cong \triangle AEF \text{ \& } \triangle EFC \cong \triangle EDC$$



The diagonals of a rectangle intersect at the center of the rectangle and form four congruent triangles.



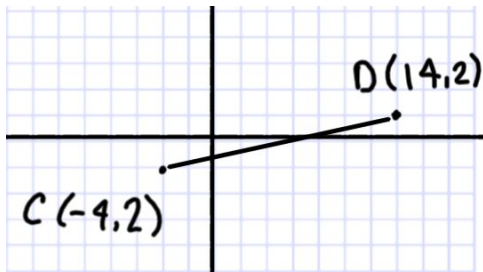
So each half of the rectangle is split into four equal pieces, one non-shaded piece and three shaded pieces, making a ratio of 1:3.

G. 3 : 1

Tip: "Midpoints" **ALWAYS** means cut the thing in half!

39. Answer: C. Linear Functions: $y=mx+b$

Trick: Read the question carefully. It is **ONLY** asking about x coordinates. The y coordinates are irrelevant.



$$\text{Midpoint} = \frac{(14 + (-4))}{2}$$

$$-4 + 14 = 10$$

$$10 \div 2 = 5$$

C. 5

40. Answer: G. Solids

Area of one face of a cube, side 8 = $8^2 = 64$

Six sides of a cube $6 \times 64 = 384$

G. 384

41. Answer: B. System of Equations

$$ay + bx = c$$

$$ay - bx = c$$

Put both equations into slope-intercept form:

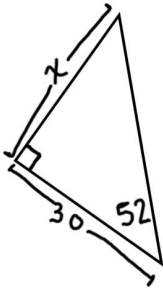
$$y = -\frac{b}{a}x + \frac{c}{a} \quad * \text{ slope} = -\frac{b}{a}$$

$$y = \frac{b}{a}x + \frac{c}{a} \quad * \text{ slope} = \frac{b}{a}$$

- I. Parallel Lines – No. Parallel lines have the same slope.
- II. Intersecting Lines – Yes. Intersecting lines have different slopes (same y intercept means that they intersect on the *x-axis*).
- III. Single Line – No. Single lines have the same slope and the same y intercept.

B. II only

42. Answer: F. Trigonometry



From the angle of 52, the opposite side is x and the adjacent side is 30.

$$\tan\theta = \frac{\text{opposite}}{\text{adjacent}}$$

$$\tan 52 = \frac{x}{30} \quad * \text{solve for } x$$

$$x = 30 \tan 52$$

F. $30 \tan 52$

43. Answer: D. Charts & Graphs

Odds – *in age* : *not in age*

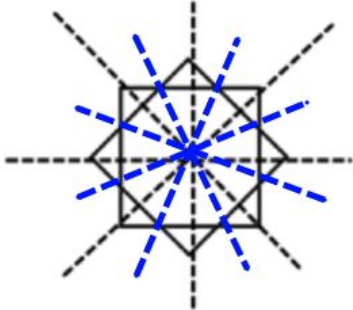
$$(25 - 35) = 42\% \quad (\text{all others}) = 58\%$$

$$42 : 58 = 21 : 29$$

D. 21 : 29

44. Answer: H. Multiple Figures

“Lines of symmetry” are lines that are when folded each side is a mirror reflection. There are 8 ways to “fold” this figure.



H. 8

45. Answer: A. Circles

Diameter = 2, so radius = 1

$$\text{Area} = \pi r^2 = 3.14$$

A. 3.1

46. Answer: J. Percent

Diameter = 2, 75% longer

$$2 * 1.75 = 3.5$$

J. 3.50

47. Answer: C. Geometry Lines

$\angle BAC$ & $\angle ACD$ are complimentary angles (opposite interior) and add up to 180.

$$\angle BAC = 82 \quad \angle ACD = 180 - 82 = 98$$

Each are *bisected*

$$\angle EAC = \frac{82}{2} = 41$$

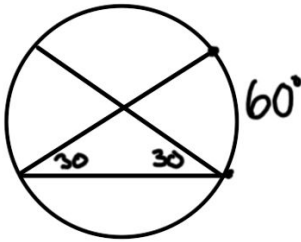
$$\angle ACE = \frac{98}{2} = 49$$

$$\angle AEC = 180 - (41 + 49) = 180 - 90 = 90$$

C. 90

48. Answer: H. Circles

Arc angle is twice the angle of the two chords.



H. 60

Tip: When a triangle is in a circle and one vertex is the center and the other two are on the circle, radii form two sides, making it an isosceles triangle – this is a standardized test favorite.

49. Answer: B. System of Equations

Infinite solutions means “same line.”

1. Using slope intercept form

$$y = 2x - 8$$

$$y = 2x - \frac{4}{3}a$$

The two lines have the same slope they need to have the same intercept. Therefore:

$$-\frac{4}{3}a = -8 \quad \text{*solve for a}$$

$$a = 6$$

B. 6

50. Answer: F. Systems of Equations

The graph shows a horizontal line at $y = 2$, as the bottom constraint. Because this is a system of inequalities, the shaded area above the line $y = 2$ represents the number of large frames that she can make. Whereas, the x axis represents number of small frames. For example: The point (2,3), she CAN make 2 small and 3 large. But (3,1) will not be made since it is not shaded.

The y axis is the number of large frames. Therefore, she makes a minimum of 2 and a maximum of 8.

F. 2

51. Answer: C. Rate & Proportion, Percent

"For every hour" = \$3

Find the number of hours worked.

$$Large = (3hrs)(4L) = 12hrs$$

$$Small = (2hrs)(2S) = 4hrs$$

$$Total = 12 + 4 = 16hrs$$

$$(\$3/hr)(16hrs) = \$48 \text{ donated}$$

Now find profit

$$30(2) + 70(4) = 340$$

$$Percent \text{ donated} : 48/340 = .1411$$

C. 14%

52. Answer: J. Systems of Equations

A maximum comes at the vertex of the polygon formed by the inequalities in linear programming (a system of linear inequalities).

The maximum profit is when she makes *only* 8 large frames.

$$(8 \text{ frames}) \times (\$70) = \$560$$

J. \$560

53. Answer: E. Matrix

$$ab - cb$$

$$x * x - 8x = -16 \text{ *solve for } x$$

$$x^2 - 8x + 16 = 0 \text{ * perfect square = factor!}$$

$$(x - 4)(x - 4) \text{ or } (x - 4)^2 = 0$$

$$x = 4$$

E. 4

Tip: Don't sweat matrix problems; the ACT is very nice and tells you exactly what to do.

54. Answer: K. Algebraic Operations

This problem has nothing to do with interest! It is simply solving for one variable in terms of another. The ACT is just trying to scare some students off, if they get this far.

$A = P(1 + 0.01i)^n$ * to solve for P, simply divide by what is not P

$$\frac{A}{(1+0.01i)^n} = \frac{P(1+0.01i)^n}{(1+0.01i)^n}$$

$$P = \frac{A}{(1+0.01i)^n}$$

K. $\frac{A}{(1+0.01i)^n}$

55. Answer: C. Solving Inequalities

"Must be true" – means that you only need to find one example that proves it wrong. Pick some numbers and get to work.

A. $\frac{x}{y} > 1$

Never true: A positive number divided by a negative number is always negative.

B. $|x|^2 > |y|$

This statement *could* be true, but is not always true.

Make $x = 2$ & $y = -200$.

$$4 \not> 200$$

C. $\frac{x}{3} - 5 > \frac{y}{3} - 5$

Simplify: add 5 to both sides and then multiply by 3

$x > y$ A positive number is always greater than a negative number.

This must be true.

D. $x^2 + 1 > y^2 + 1$

Use the same logic as B. Make $x = 2$ & $y = -200$.

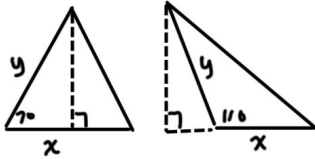
E. $x^{-2} > y^{-2}$

Use the same logic as B. Make $x = 2$ & $y = -200$

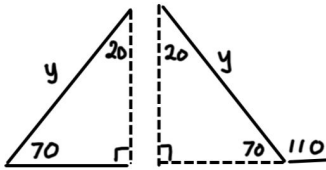
56. Answer: J. Triangles

Fun little problem. Here you have to find the *height* of the triangles (also called *altitude*). And then compare triangles.

Set x as the base of both triangles:



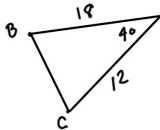
Then the trick is to see that the height is the same. The height, h , must be congruent using Angle-Side-Angle (yup, those old lovely Geometry triangle proofs).



J. 30

57. Answer: E. Trigonometry

Here it is the Law of Cosines that must be used because we have the length of two sides and the angle in between them.



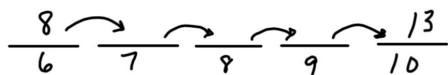
$$\overline{BC}^2 = 12^2 + 18^2 - 2(12)(18)\cos(40^\circ)$$

E. $\overline{BC} = \sqrt{12^2 + 18^2 - 2(12)(18)\cos(40^\circ)}$

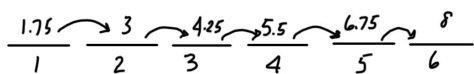
Tip: Memorize the Law of Sines and the Law of Cosines. Look at the examples of when each are used on the ACT. Generally, the ACT only asks you to set up the equation, not solve it.

58. Answer: G. Sequence

For most sequences, I like to draw a picture of the number blanks.



From 8 to 13 moving 4 spaces is $\frac{(13-8)}{4}$. Each space is $\frac{5}{4}$
 Now find the first 4 terms.



Add them up: $1.75 + 3 + 4.25 + 5.5 = 14.5$

G. 14.5

59. Answer: C. Quadratics & Parabolas

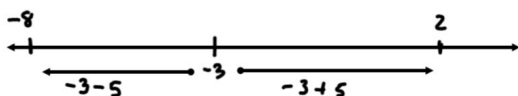
If the only solution is $x = -3$ then the quadratic is $(x + 3)^2 = 0$

Expand: $x^2 + 6x + 9 = 0$; $m = 6$

C. 6

Tip: When a quadratic equation is equal to zero, you are solving for the “roots” – otherwise known as “factoring.” When there is only one solution or root the quadratic is a “perfect square” with its vertex on the x axis.

60. Answer: F. ABS Absolute Value



The solution set is $(-8, 2)$; Either put the solution into the equations or solve the equations:

$$|x + 3| = 5$$

$$(x + 3) = -5 \quad \& \quad (x + 3) = 5$$

$$x = -8 \quad \& \quad x = 2$$

F. $|x + 3| = 5$

Tip: Absolute value is used to measure distance from zero. “5 units from -3” means numbers that are a distance of 5.

Reading Test

1. Answer: D. *Big Picture*

This is a tricky question, but if you're careful you can solve it. Notice that the question asks for you to describe the *point of view* and not the *narrator*. This is a slight difference, but it determines whether the answer is **A** or **D**: one describes the narrator as a person, the other describes the point of view as a literary aspect.

2. Answer: H. *Detail, Least/Not/Except*

Try not to spend too much time on this question. You can definitely answer correctly if you go back to the text, but you'll want to do so efficiently: read over the answer choices and skim the text for mentions of those keywords. Note that the question asks about *recurring* references, not singular.

3. Answer: B. *Detail, Least/Not/Except*

Read through the answer choices, then go back to the paragraphs in question. Read through quickly and see what is mentioned, but do *not* read past the paragraphs cited; that's how they can catch you, as you might find information that changes your answer but which is not valid because it is outside of the lines given.

4. Answer: G. *Inference/Assumption*

There is no concrete answer in the text for this question; instead, you have to make an inference based on the language used by the narrator. You can look back at the text if that helps you, but if you read closely you may not need to. Because of the author's generally skeptical language when observing the changes in her town and her general nostalgia, the most logical answer is **G**.

5. Answer: B. *Detail, Least/Not/Except*

Be wary of all the catches in this question, and make sure you're reading carefully for the questions as well as the text! This is an "except" question, and asks specifically about what happened in the past. Read the answer choices and revisit the text, making sure to check whether each mention of a choice is in the present or past.

6. Answer: F. *Detail*

If you read closely, you may be able to answer this question immediately. Otherwise, read the answer choices and scan the text for them, checking the context to see if they are new or old fixtures in the town. You can also answer this question reliably using common sense and logic: which of the answers here sticks out as a "new" convention and not an old business? The tanning salon.

7. Answer: C. *Detail, Line Number*

Look at the context of the line. Having just discussed the dissolution of the Soviet Union, it should be clear that that is an important part of the answer. Between **A** and **C**, the two answers pertaining to the context clues, the correct answer is the one supported by facts from the text. There is no indication of the cosmonaut feeling like a "citizen of space," but there was a very clear political transformation.

8. Answer: F. Detail, Inference/Assumption

You will likely need to revisit the text for this question, and without line numbers provided that may take some searching. Be careful not to spend too much time doing so: instead skim for the part where the narrator steps off of the train, line 22. Note that the question asks for who is *most strongly suggested* to have met her, not for *who all may have* met her. Because of the specific mention of her father in line 26, the correct answer is **F**.

9. Answer: D. Detail

This question is quite straightforward, and if you read the passage closely the first time you may immediately know the answer. Otherwise, check the answer choices and skim the text for mentions of them. In this case, the correct choice is **D**, because in line 57 the narrator says the other changes “pale in comparison” to the casino.

10. Answer: H. Detail

Be careful to answer based on what the news reports said, not the narrator’s own thoughts. If you go back to the text, you will see the answer in lines 87-89. Although the narrator does not explicitly state that the news said this, her ambiguous pronoun is most likely to be interpreted this way.

11. Answer: C. Big Picture

Make sure you read the question carefully and understand it completely before answering. It is not asking for the author’s claims, but rather asking what the reader would first need to accept in order to appreciate the claims (regardless of what those claims are). The answer is **C** because it is the most relevant to the text. **A** and **D** have no textual support, and the remaining answers are no close contest. In fact, the idea of needing “the best materials” is contrary to the OELA’s mission of using scraps and undervalued woods.

12. Answer: F. Line Number

This question perhaps seems like it will be difficult, but if you look at the answer choices there is a clear best. **G** and **H** can be ruled out right away if you read the text, and **J** (although it seems to answer the question) is contradictory to the actual process described.

13. Answer: C. Inference/Assumption, Big Picture

The author is overwhelmingly positive in their descriptions of the OELA, and even their decision to write this text at all indicates an interest in their project. Between the positive answers, **C** and **D**, the best answer is the one supported entirely by the text: the passage does not go into the details for the possibility of replicating this project, so that is not the answer.

14. Answer: G. Main Idea/Function: Paragraph, Paragraph Number

Look back at the second paragraph. Which of these answers is the *purpose* of the paragraph, and not merely mentioned in it? The population growth and Ford Foundation presence are relevant, but not purposes for the paragraph. **G** and **J** are potential purposes, but **J** is not relevant; there is no mention here of justifying taxation.

15. Answer: D. Main Idea/Function: Paragraph, Paragraph Number

This question is much like the last one. Remember, you are looking for a purpose for the whole paragraph, not just a detail in it. **A**, **B**, and **C** are not the purposes for the paragraph, although there are some supporting details in there. The correct answer is **D**, which correctly shows what this paragraph aims to do.

16. Answer: H. Detail, Least/Not/Except

You may be able to answer this question based only on memory, if you read closely the first time. If not, read the answer choices and go back to the text. Be careful not to spend too long searching. Note also that this is an “except” question. The correct answer is **H**: although some of the popular woods are *near* extinction, they aren’t the woods the OELA are interested in using.

17. Answer: B. Detail

Read carefully! The question specifically pertains to what *most* students will go on to do, *not* simply what *some* will do. If you don’t notice this catch, you may incorrectly choose answer **D**. While only some go into politics, “virtually all” of them return to their hometowns.

18. Answer: J. Detail

This question is as much basic math as it is reading. The two steps here are: go find the detail in question (lines 25-28), and do the math (20 million out of 30 million is two thirds wasted).

19. Answer: A. Detail, Least/Not/Except

The answer is in the text! Because this is an “except” question, you can stop your skimming if you find *Aniba canellila* before the other choices; only one can be the answer!

20. Answer: F. Detail

Because it is in a small paragraph, it should not take long to locate the answer in lines 61-62. Note that the question asks what the *student* receives, not the donor.

21. Answer: C. Big Picture

Look at the operative word in each answer choice. One should stick out as clearly the most relevant: *reflecting*. The rest of the answers are much too factual and specific for this rather general passage, which itself has no clear purpose beyond sharing reflection.

22. Answer: J. Chronology, Detail

The key to this question is understanding how the author describes his passion. Because it has always been there for him, the correct answer will be whatever topic is the first he mentions from a chronological perspective: in the text, this is the interest in lizards and butterflies which he says predates the interest in chemistry.

23. Answer: A. Main Idea/Function: Paragraph, Paragraph Number

Don’t immediately go back to the text; if you read it already, you can likely answer without needing to go back. Most of the answer choices are fairly obviously incorrect: there is no indication of doubting Mr Marsh, nor is there a biographical element beyond creative introduction. There is no mention at all of his class. The best answer is **A**, as simple as it is, because it is the only one supported by the text.

24. Answer: J. Detail

You may remember this from your first reading. If not, go back to the text and find the part in question. It does not provide line numbers, so be careful not to take too long searching. It is worth it, though, because the answer is immediate and clearly stated.

25. Answer: C. Detail, Line Number

Consider why the author discusses his hobby of drumming. Most of this text is spent discussing his scholarship, and how he has had a scholarly energy with him for his whole life. He provides a number of examples of how he expressed that scholarship, one of which was his interest in music and study of drumming technique. Though he is not a professional musician today, there was a time when he spent his energy on music. Thus, the answer is **C**.

26. Answer: F. Detail, Paragraph Number

Looking back at the text, the author uses the phrase “harnessing of undirected mental energy.” There is enough information here alone to answer this question, and if you read the text closely it should be even more clear that the answer is **F**. There is nothing to indicate it is destructive, nor any implication that his earlier interests were trivial.

27. Answer: C. Big Picture, Line Number

Look at the statement in question. Does the author seem to be saying that this is a problem for the students to solve, or the educators? Given how the passage goes on to describe Mr Marsh’s success in this regard, it seems to be the latter. As such, the answer is either **A** or **C**. Nowhere does the author indicate that the answer is philosophy; in fact, his point seems more that philosophy just happened to be his solution, but it could have been whatever his energy was harnessed towards. The answer is **C** because it is supported by the following descriptions of how he was successfully engaged in learning.

28. Answer: J. Inference/Assumption, Line Number

Read the question closely! It asks for part of the author’s argument, so the answer must be one he argues for. **F** and **G** are simply not related to the text, because he does not make these arguments anywhere. If you read the text well, you should see that fairly quickly. **H** is perhaps even more outlandish an answer, as physically pain is not even alluded to in the text.

29. Answer: A. Main Idea/Function: Paragraph, Line Number

When the author describes the image and the memory with which it corresponds, how does he talk about it? What feelings are attached to the words he uses? **B** and **D** are not correct because anger and frustration are not present. Between the remaining choices, the correct choice is **A** because **C** ignores the elements of tension and darkness which are essential to the image.

30. Answer: F. Line Number, Least/Not/Except

What is the transition being described? If you aren’t sure, go back to the text and check; although since this is an “except” question, you may be able to identify the odd answer out just by looking. As it is about an idea taking form through writing, which answers are applicable? One must stick out as unlike the other three. **F** is the correct choice because there is nothing to indicate a decrease in value by writing down an idea, while the other three are applicable.

31. Answer: B. Main Idea/Function: Paragraph

Answers **A** and **C** can be ruled out quickly because the text does nothing to support them. Between the remaining answers, which is the best choice as a main idea? Because **D** is just a fact, and not an idea being presented by the passage as a whole, it cannot be the answer.

32. Answer: H. *Big Picture*

Which of these is a significant development as presented in the text? Although **H** is not the only specifically mentioned fact, it is the choice which most correctly answers the question, especially when you consider how much time is spent discussing it and how much of the overall passage is reliant on it.

33. Answer: D. *Main Idea/Function: Paragraph, Paragraph Number*

Because of how the question is phrased, we know that the main purpose of this paragraph is to *describe* something. So, simply look at the paragraph and see what's being described. Although some of the answer choices are mentioned, they are only components of the whole river stage of the eel life cycle.

34. Answer: J. *Detail*

This question is simply asking for you to go back and search for a specific detail. If you read the answer choices first, you will be able to skim more quickly and save time.

35. Answer: B. *Detail*

This question, too, is just asking for you to find a specific detail. You may be able to remember from your first reading, but if you need to go back and search just be sure not to spend too much time doing so.

36. Answer: G. *Vocabulary in Context, Line Number*

Even if you think you know the meaning of this word, go back and check the context! Often these questions will fool you by giving multiple valid definitions with only one correctly applicable to the passage. In this case, the answer is **G** because it refers to "popular" in the sense of "pop-culture;" that is, commonly known.

37. Answer: B. *Vocabulary in Context, Line Number*

Like in the above question, don't assume you know the answer just because you know the word: go back and look at the context! As they are "reading" the rings of the eel's skull, which answer makes the most sense if substituted for *read*? The answer is **B**, because they are *observing* the structure.

38. Answer: F. *Detail*

If you don't remember the answer, read over the choices then go back through the text quickly to look for the passage in question. When you find it, read carefully. The answer is stated in lines 59-61.

39. Answer: A. *Detail*

Search the text for a keyword from the question. In this case, if you scan the text for "osmosis" you will find line 62 with ease. Look at the context and read it closely and you will find the answer is **A**.

40. Answer: F. *Detail*

You will likely remember the correct answer if you read closely, because much of the last paragraph goes over this. If you don't, look over your choices and revisit the text. The answer is *size*, as indicated in lines 80-81.

Science Test

1. Answer: D. Bar Chart: Data Point

Study 1 is described in Figure 2. The highest percentage of beaks is represented by the tallest bar. On Island B (second bar chart), the tallest bar is at 10 mm. On Island C (third bar chart), the tallest bar is also at 10 mm.

2. Answer: J. Text to Data

The text states "small seeds are abundant during wet years". The only bar marked "wet" on Figure 3 is 1984, so 1984 must have had many small seeds.

3. Answer: B. Text: Compare, Text: Experimental Design

Study 1 mentions using both *G. fortis* and *G. fuliginosa* finches. Study 2 only mentions *G. fortis* finches.

4. Answer: J. Text: Infer

The only mention of the tags includes the information that the birds were tagged, measured, and released. It can be inferred from this information that the finches were tagged to ensure each bird was only measured once. The other answer choices don't make sense.

5. Answer: C. Bar Chart: Infer

Figure 3 describes 1977 as a dry year. On the second page, the text states that during dry years, seeds are larger. In the second paragraph of the passage, the text states that birds with shallower beaks can only eat small seeds, and birds with deeper beaks can eat both large and small seeds. Thus, it can be inferred that the larger beak (9.9 mm) allows birds to eat larger seeds.

6. Answer: F. Text: Explain

According to Figure 2, Island A has *G. fortis* competing with another species, whereas Island B does not. The range of beak sizes (how many different sizes of beaks were measured, and how far apart the measurements were) is larger on Island A than Island B.

7. Answer: D. XY Graph: Data Point

Neither of the graphs in Figure 2 has a maximum in February (F). In Figure 3, SO_4^{2-} has a maximum in February (F) and a minimum in July (third J).

8. Answer: G. XY Graph: Infer

In Figure 2, the average wet deposition for Cu^{2+} , which can be estimated as the middle of many values on the graph, is around 50. Since the maximum is farther away from 50 than the minimum, the average is likely just above 50 (between 50 and 75).

9. Answer: A. XY Graph: Infer

In Figure 3, the Cl^- wet deposition is highest in November, January, February, March, and April, which is most of winter and early spring.

10. Answer: H. Text: Experimental Design

The second and third paragraphs of the text states that deposition was calculated using collected precipitation. If there was no precipitation, there could be no wet deposition of any of the four substances.

11. Answer: C. Bar Chart: Data Point

Study 3 states that Site 2 is farther than Site 1. For both ions shown in Figure 4, Site 2 has a lower value than Site 1. Thus, as distance increases, deposition decreases.

12. Answer: F. Text: Experimental Design, Science Knowledge

The text states that Study 1 is done at a "specific urban site", and Study 2 uses the same sample. Since only one site is used, location is held constant.

13. Answer: B. XY Graph: Data Point

In Figure 1, cloud cover is represented by a dashed line and the measurements on the left axis. In January 1987, the dashed line is around 13.5%.

14. Answer: H. Data Table: Extrapolate

In Table 1, for every 20,000 increase in cosmic ray flux, the cloud cover increases by 0.3%. At 440,000, which is 20,000 more than 420,000, the cloud cover would be 0.3% more than 29.0%, or 29.3%.

15. Answer: A. XY Graph: Correlation, XY Graph: Increase/Decrease

Figure 3, which shows low cloud cover and cosmic ray flux, shows two lines that follow each other more closely than the cloud cover (dashed lines) on any of the other two graphs.

16. Answer: G. XY Graph to Bar Chart, XY Graph: Data Point

In January 1992, the low cloud cover is around 28, the middle cloud cover was around 20, and the high cloud cover was around 13.5. The correct bar graph has the bars getting lower from left to right (from high to middle to low).

17. Answer: D. Science Knowledge, Text: Experimental Parameters

According to the first paragraph, low clouds are 0 km to 3.2 km and high clouds are 6.0 km to 16.0 km. If high clouds are made of ice crystals but low clouds are not, it must mean the temperature in the high clouds is below the freezing point of water (0°C) and the temperature of the low clouds is above the freezing point of water.

18. Answer: F. XY Graph: Data Point

In Figure 1, yellow is represented by the dotted line (left half of the graph). The only listed value that falls when the line is dotted rather than dashed is 0.80 mL.

19. Answer: B. Science Knowledge, XY Graph: Data Point

The passage states that the indicator is yellow if the pH is less than 6 and blue if the pH is greater than 7. Thus, the solution was neutral (pH of 7) where the solution is green, represented by the solid line and text in Figure 2 from 0.95 to 1.00 mL.

20. Answer: J. XY Graph: Data Point

Figure 2 shows that as the volume of titrant added increases (above about 0.30 mL), the conductivity also increases. The conductivity at 2.00 mL is almost 3.5 kS/cm, so the conductivity for 2.30 mL would be higher. More specifically, at 1.70 mL, conductivity is roughly 2.5 mL and at

2.00 mL, conductivity is roughly 3.5 mL, so following that same pattern, at 2.30 mL, conductivity would be roughly 4.5 (certainly greater than 3.80).

21. Answer: C. Text: Experimental Design

According to the first paragraph, the titrant is an acid or base solution that is added to the sample solution. Experiment 1 states that NaOH is added to an HCl solution, so NaOH is the titrant and HCl is the sample solution. Experiment 2 states that acetic acid is used instead of HCl, so acetic acid would be the sample solution, although NaOH would still be the titrant.

22. Answer: J. Text, Science Knowledge

Experiment 1 states that the probe measures conductivity, which is how well an electrical current can pass through a substance.

23. Answer: A. Text to Data, Text: Explain

In Figure 2, the line was dotted at 0.20 mL, so the solution was yellow and had a pH below 6. At 1.8 mL, the line was dashed, so the solution was blue and the pH was above 7. Thus, the evidence does not support the claim, since the solution was yellow at 0.2 mL and blue at 1.8 mL.

24. Answer: H. Science Knowledge

Student B states that Algol B "encountered" the Algol system and became part of the system. When stars and other very massive space objects move near each other, the gravitational force between their giant masses pull them towards each other.

25. Answer: B. Text

According to Student 1, when matter flowed from Algol B to Algol A, Algol B was a post-MS star. According to fact 4, a post-MS star produces its energy by fusion in a shell surrounding its center.

26. Answer: G. Text: Compare

Student 2 states that Algol B was from a different system than Algol A and Algol C, and would likely agree with the statement that Algol A and Algol C were most similar.

27. Answer: C. Science Math

The text states Algol C is a 1.7-solar-mass star and a solar mass = the Sun's mass. Therefore, Algol C has a mass 1.7 times the mass of the sun, which is $1.7 \times 2.0 \times 10^{30} = 3.4 \times 10^{30}$.

28. Answer: G. Science Knowledge

Fact 3 describes nuclear fusion of protons, which can only occur at high temperature and pressure because protons are positively charged, and like charges repel each other.

29. Answer: B. Text: Compare

Fact 5 states that larger stars move through stages faster than smaller stars. Student 1 states that Algol B was originally the most massive, which means it would have been the first to progress to MS.

30. Answer: H. Text: Explain

Fact 5 states that larger stars move through stages faster than smaller stars. Student 2 states that Algol B was always less massive than Algol A, so Algol A would have spent less time being an MS star because it is more massive than Algol B.

31. Answer: C. XY Graph: Extrapolate

In Figure 2, Krypton in the 6L vessel is represented by the line with diamonds. Krypton is at around 250 torr at 7 g and 350 torr at 10 g, so would likely be around 450 torr at 13 g.

32. Answer: G. XY Graph: Extrapolate

5 L is between 3 L and 6 L, but closer to 6 L. In a 3 L vessel, 7 g of CO₂ is at around 1,000 torr. In a 6 L vessel, 7 g of CO₂ is at around 500 torr. In a 5 L vessel, 7 g of CO₂ would likely be between 500 and 1000 torr.

33. Answer: A. XY Graph: Data Point

In Figure 1, 4 g of O₂ (line with dots) in a 3 L vessel is around 800 torr. In Figure 2, 4 g of O₂ (line with dots) in a 6 L vessel is around 400 torr. Thus, in the 6 L vessel, O₂ is half as much as in the 3L vessel.

34. Answer: J. XY Graph: Data Point, Science Knowledge

In Figure 1, the CO₂ line (line with squares) is always at a lower pressure than the O₂ line (line with dots). O₂ will have more molecules per gram than CO₂ because it is lighter per molecule, so the pressure exerted by O₂ will be greater.

35. Answer: A. Science Knowledge

As temperature increases, pressure increases as well, because pressure is directly proportional to temperature. The experiment was done at 22°C, so at 14°C, the pressure would have been less. (Try it out: a balloon in the refrigerator will get smaller.)

36. Answer: G. XY Graph: Data Point, Science Math

In the figure, the lowest part of the "threshold of hearing" line ends around 2×10^1 Hz, which is 20 Hz.

37. Answer: A. XY Graph: Extrapolate

If hearing loss occurs at high frequencies, the top of the graph would be lower after loss (dotted line). Choice A is the only graph that has the top of the line (highest frequency) lower after loss.

38. Answer: F. XY Graph: Data Point

In the figure, an S of 100% is always at a higher intensity (more to the right in the figure) than any other value of S. Sound in water (dotted line) always has a higher intensity than sound in air (dashed line) at the same frequency. Thus, the highest intensity would be in water at S=100%.

39. Answer: C. Text: Explain

All values on the "threshold of hearing" line are below 10^5 Hz, so humans can't hear sounds above that frequency.

40. Answer: J. XY Graph: Range of Values

For each S, the frequency changes as S stays the same. Thus, S does not depend on frequency.